Space Weather Forecast

Issued on Tuesday, 21 May 2024 at 13:11 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Chance of isolated Moderate class flares throughout. Generally quiet to unsettled (Kp0-3) geomagnetic conditions expected.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Low, with the largest event a Common-class flare from a sunspot region in the southwest. There are currently eight sunspot regions on the visible disc. The largest region remains in the southeast, which comprises of a number of large, mature spots, with recent consolidation of some of the smaller spots. A sunspot region in the southwest is the next largest, which has shown some recent growth in its trailing portion. The other sunspot regions are generally smaller, simpler and generally stable.

No Earth-directed CMEs (Coronal Mass Ejections) were observed in the past 24 hours in coronagraph imagery.

Solar Wind / Geomagnetic Activity: Solar winds were largely at background levels, with speeds ranging between 360-410km/s. The Interplanetary Magnetic Field was weak. The north-south component oscillated weakly. Geomagnetic activity was Quiet (Kp0-2).

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) remained below the S1/Minor Radiation Storm levels and are now at normal background levels.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate activity is expected with a chance of isolated Moderate-class flares and a very slight chance of isolated Strong flares. The moderately sized sunspot region in the southeast disc is most likely to be the source of significant flare activity.

Solar Wind / Geomagnetic Activity: There are no Earth directed CMEs (Coronal Mass Ejections) in the forecast, with the potential for connection to a HSS (High Speed Stream) Day 4 (24 May).

Activity is expected to remain largely quiet to unsettled (Kp0-3), with a slight chance of Active-G1/Minor storm (Kp4-5) intervals Day 4 (24 May).

Energetic Particles / Solar Radiation: Solar radiation is at background levels. There is a persistent slight chance of further enhancements should any large flares occur.

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Met Office Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	1	1	1	15
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	60	60	60	60
Very Active	R3 to R5 X	No	5	5	5	5

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	10	10	10	10
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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